

THE  
S C E P T I C.

.....  
"DULCE EST DESIPERE IN LOCO."

Hor. Carm. Lib. 4. Ode 12.

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Retford.

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THE

SCOTT'S

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## THE SCEPTIC.

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### *The Birth of Wonders!*

READER! for the Whim that Influenced me to write, will, I hope, by an act of reciprocation, induce some one, at least, to read: — therefore, gentle Reader, let me for a moment, or two, beg your attention; and I have no doubt of being able to convince you that this is a day of great things! —an *Æra* big with wonders; —Some of which are already brought to light! —and as by the continuance of her pains, it is evident that her delivery is not yet complete, other young wonders may be hourly expected; as the old accoucheur, Time, is still in constant attendance.

What hath been so sublimely and so sweetly Sung of that Hero of renown, the puissant Tom Thumb; by the transposition of a Single

word, will admirably express the very Spirit and temper of the times;

"Sure such a day, so renown'd so *uproarious*;

"Such a day as this was, ne—ver seen."

and some of our modern Geniuses who are so well versed in the management of mysteries, will, I have no doubt, be able to render it evident, that the above was written, with a prophetic eye to the very *uproarious* events of our present æra; which appears to me as evident, as that the Brahma, Veeshnu and Seeva of the antient Hindoos, some thousands of years ago; were allusive to the trinity in unity of much later invention. —Be that as it may, my Gentle Reader; permit me now to snuff my Candle and present to thy astonish'd Sight, the swarm of wonders already brought to light; —tho' young yet powerful!

The most redoubtable of this birth, was baptis'd *Revolution*; a kicking dog. Old Time could scarcely hold him till he cut the String that hitherto had nourish'd him in secret, and gave him to the world.

His actions have already been Stupendous! He works by open force and sly intrigue. — He hath converted millions of Slaves into lawless libertines, and changed pusillanimity into heroism! — He hath insidiously, —but no matter, I don't deal in politics. He hath however destroy'd the balance of the World; and thousands of throats are daily cut, first on one side and then on the other, as either Scale preponderates; till an equilibrium can be restored!

But thou and I, my gentle reader, take no delight in Scenes of horror. The Sight of human gore, staining the ground where vegetation smil'd; appals the Sight! Sickens the heart and makes the blood run cold! —Our ears too delicate, our hearts too soft, we dread to hear the ravings of distress! the widows wailing's and the Father's sigh, for nearest, dearest, friends, alas! —no more!! Let us, then, leave this scene of desolation to those whose hearts are so divinely temper'd that they can find rapturous music in the din of war, and best are pleas'd when Carnage most abounds.

As a Contrast to this boisterous rogue, I shall next take notice of his little Sister; a Charming babe! who being subject to strange Convulsions, was immediately baptised by the name of *Mesmeria*. — Wonderful was the influence which the Sufferings of this dear innocent had upon the by-standers! — her eye fascinated and charmed to the spot whomsoever it fixed upon! — the Convulsive motions of her little hands; like the mysterious power of enchantment, subverted the laws of nature; hurl'd reason from her throne, and agitated the frame with one wild uproar and confusion!

Every beholder was affected; some laugh'd; some sigh'd; others danced; many scream'd; some hiccup'd and others f---'d. — But these were the least wonderful of her effects! — for it was found that those who had once been under her influence were, afterwards, equally affected whenever her Crisis came on, altho' they were a thousand miles distant!

How shall I relate the tragical event, that deprived the world of this wonder-working

Darling!—The King of France, for this sweet Sprig was a native of France, deputed a number of learned men of the *Academie Royale* &c. to hasten and see this prodigy; and tell him all about her; when one of the Sages; wrapt into extacy by her power; at the very moment of Crisification, fell prone! —how shall I proceed?—his learned head, pitched directly into the lovely pit of the lovely Stomach of the ill-fated Mesmeria!! She shriek'd!—turn'd up the whites of her little eyes! — threw up her water pap—then,

“Groan'd, kick'd, sh—t and died.”

Hard is the heart and dry the eye, that will not give one sigh, one tear to virgin innocence, thus press'd to death, by the dense caput of a french R. A!

Blasted are all our hopes of wealth and fame, from mystic influence, —now, alas! no more! Coblers now seek their ends; Barbers their hones; Painters their brushes; Butchers their marrow bones: e'en Quakers quake no more!

their Spirit's gone! —they now must either work, or thief, or starve!

The next which came to light of the same gender, was invisible; and only known to be a female by the noise she made.—She vanished instantaneously: fled into Italy, and entered into the body of a Frog, which professor Galvani was dressing for his Wife's supper. — As She has never condescended to render herself visible, or useful; I think proper to treat her as beneath my notice.

Were I a frog, indeed, I should think myself justifiable in cursing the moment of her birth, and execrating the fools who, dead to all the feelings of humanity, heap aggravated tortures on the race—harmless as doves!— to see them—shake a leg!

The next young Wonder, in point of magnitude, was *Antiphlogiston*! — he shivered a little at first, when exposed to the cold; but, by being placed before the ash-hole of a reverberatory furnace, and fed with sur-oxygenated

panada, he suddenly sprang up like a mushroom ; expanded to a Colossal size ; and like a fog, diffused himself over all Europe : and like a fog too, he is mere vapour, which involves all objects in obscurity. At first he wandered about like a spectre without power, or energy ; till his little brother *Caloric*, another young Wonder, was born. He then associated himself with him ; and, together, they have performed amazing feats of dexterity, in the hocus pocus way, to the astonishment of all the learned lovers of incomprehensibility in all the various parts of the World.

All their tricks are performed by confederacy ; and *Caloric*, very commonly, lies perdue under the table, and produces wonderful metamorphoses : while *Antiphlogiston* is the ostensible actor ; making faces and uttering an unintelligible jargon of words, to take off the attention of the gaping multitude.

Thus, *Antiphlogiston* produces a bottle containing a little acid, which he places in a little sand in a pot standing upon the table :—he

then begins a pompous harrangue about Oxyds, Carbonates, oxygenated and sur-oxygenated muriates, &c. accompanied with shrugs of the shoulders, spluttering and grimace: in the mean time, Caloric, under the table, diffuses himself into the bottle among the acid, and becomes invisible; when Antiphlogiston immediately shews to the astonished gapers-on that the acid is actually converted into air.—To the initiated he explains the trick; and shews them clearly that Caloric and oxygen form air; and that his brother Caloric, tho' naturally so *hot* and *fiery*, that there is no coming near him, by this combination becomes so *cool* and peaceable that a *Man* might starve to death in his arms.

Caloric, however, being hasty, touchous and passionate, sometimes acts rather eccentrically; and will not behave to his brother Antiphlogiston with due decorum: which he however excuses to the audience, by accusing poor Caloric of wildness and instability.—Thus, Caloric will sometimes assist a metal to copulate with oxygen; when, his imagination

being a little heated by the scene presented to his view, he suddenly seizes poor oxygen by the nape of the neck; tears him from his embrace; and, instantly renders him invisible, by metamorphosing him into gas! thus destroying in one moment what he had done the moment before.

Sometimes Caloric will appear when nobody thought him near them; and even his brother Antiphlogiston stares with astonishment, and wonders how the D—l he came there; as lately happened in the presence of Count Rumford and of Mr. Davy.

In fact, they, as well as Antiphlogiston himself, were so struck with his appearance, that they concluded he must be either the D—l, or perpetual motion personified they hardly knew how; and they hardly knew which: except Mr. Davy, who at last swore that he was motion and nothing else.

Some people take him for the D—l, and

treat him as such: for example, certain great Physicians have lately entered into a compact with him; the conditions of which are, that Caloric shall be at their call and command, to enter into strange shapes and combinations, and to suffer himself to be *conjured* into a *bladder*. In this state he is to be sold to make their fortunes; when (as soon as the money is paid,) he disengages himself from the purchaser, leaving nothing but his nastiness behind him.

The other part of the conditions, e' contra, is, that these bladder conjurers or newfangled Doctors shall pimp for Caloric. Being naturally hot in constitution, his passion for the Ladies is unquenchable; these Doctors, therefore, in return for fame and fortune, are bound to recommend and introduce him to the Ladies, in the state of gas. —In this insidious manner gaining admittance into their lovely persons; he warms their snowy bosoms; blows up the latent Spark of soft desire; explores each hidden source of human bliss, and, unsuspected, riots in their Charms! —and —if certain innuendo's have foundation, more than one fair patient has become a Mother in consequence.

Indeed, Antiphlogiston and his Brother Caloric, every day perform wonders! —by a Chemico-pathological process they convert Wine into Water and Mutton and Turnips into dung: —Caloric, in a trice, will convert ye a Diamond into Charcoal, and change good Stout Ale into Dead Small Beer!

In short, Caloric himself is the oddest dog I ever met with! —he was born in France; was destined, in partnership with his Brother Antiphlogiston, to make fools of one half of the world, while his Brother Revolution cuts the throats of the other. —He was frequently hinted at in the writings of the Evangelists and Apostles, and appointed to the great and honorable office of tormentor general of the d--d to all Eternity. —Perhaps, my gentle reader, thou wilt tell me that thou art not fool enough to be gulled by any of the wonderful absurdities I have told thee; if so, join with me and acknowledge thyself

A SCEPTIC.

*A Remark, or two, on M. Fourcroy's Memoir  
on the Application of Pneumatic Chemistry  
to the Art of healing.*

THE World has, lately, been favor'd, with  
the deservedly celebrated, M. Fourcroy's Me-  
moir on the Application of Pneumatic Che-  
mistry, to the Art of healing, &c.

I take the liberty, in a friendly way, to say  
that I think there is too much Egometism in the  
Memoir in question. —M. F. seems to put  
in a claim to every discovery; for what he did  
not predict, he foresaw. —New Ideas are push-  
ed on to their maximum; without stopping to  
consider whether they are founded on reality  
or not; nay even the very principles upon  
which his Theories are built, are gratuitous;  
and so far from being founded on fact, they  
appear to me absolutely untenable.

M. F. says, "Water, which of all oxygenated bodies is the most oxygenated, since it contains 0,85 parts, has only a weak medicinal action; because the principle which fixes and saturates the oxygen, the 0,15 parts of hydrogen, retains it with too much force to part with it easily, to animal matter." —Water, then contains a great proportion of oxygen, which is *saturated* with hydrogen; and is inactive, or nearly so, as not easily parting with its oxygen to the animal fibre: —and yet, soon after, he tells us as a 2nd. Axiom, that, "the farther any Substances, which are in union, are from the point of Saturation, the more strongly do they adhere together." —Consequently, the nearer any Substances which are in union, are to the point of *Saturation*, the *less* strongly do they adhere together: —that is, they more easily part with their oxygen to the animal fibre; and are, therefore, more active as medicines; as he instances in the red oxyd of iron; which is more active than the black, because it has a greater proportion of oxygen than the black has, which is therefore, less firmly united to the iron. —But, Water, has a still *greater* proportion of oxygen,

according to M. F. which is at the point of *Saturation* with hydrogen; and, therefore, ought still *more easily* to part with its oxygen; —but it does not! and this second thought of M. F. appears to me, directly to contradict the first.

We soon after find M. F. exulting in this 2nd Axiom, —“ never has a clearer light shone upon Therapeutics!” —He then says, “Water, as oxygenated hydrogen (hydrogen being that Substance which of all others has the greatest affinity with oxygen), is the weakest of all medicines.” —Now, if hydrogen has the greatest affinity with oxygen of all Substances, how, then, can it be possible to separate them, when once combined? —and yet, Water is readily decomposed by Vegetation, by Iron, and in a thousand operations, according to the very theory which M. F. adopts.

It is not my intention, however, to follow M. F. gradatim, through all his reasonings; nor to point out all the inaccuracies and unwarrantable deductions which abound in the paper under consideration; I shall confine my-

self to his grand error, that the active metallic oxyds produce their effects upon living animals, by means of the oxygen which they contain being imparted to the animal fibre.

Quicksilver is a bland fluid, which has no sensible action, when taken into the stomach.

The sur-oxygenated muriate of Quickfilver, or to render the case more simple, the Nitrate of Quicksilver, is a violent Caustic, which, taken into the stomach of a living animal in the dose of a few grains, produces the most violent effects.

According to the principles which M. F. maintains, the Nitrate of Quicksilver is merely a combination of Quicksilver with oxygen; and the difference in the effects upon the stomach, he, therefore, attributes to the oxygen solely.

But, if the few grains of oxygen which the mercury attracted from the azote of nitrous acid, when transferred to the animal fibre, produces such violent effects; why does not the

oxygen of the nitrous acid itself, produce such effects when taken into the stomach? —A drachm of nitrous acid, diluted with a pint or two of water, may be taken into an healthy stomach without injury; but a few grains of the nitrate of quicksilver with that quantity of water, produces effects the most alarming.

THE animal fibre can abstract the oxygen from the quicksilver combined with it to form nitrate of mercury: quicksilver can take oxygen from the azote with which it forms nitrous acid: consequently, the animal fibre must readily attract the oxygen of nitrous acid from its azote, because it can take it even from quicksilver; which quicksilver can displace the azote, and combine with the oxygen of the nitrous acid.

THE simple play of oxygen, then, cannot explain these effects; and some principle must have been overlooked, which is essentially necessary to render the theory complete, and to afford satisfaction to the accurate reasoner.

If Metals are simple Substances, generally, to a considerable degree, inactive as medicines, in their entire state; and are rendered active by combination with oxygen: —If the activity they manifest when taken into the stomach in their oxyginated state, be produced by transferring their oxygen to the animal fibres: the oxygen transferred being the same principle in all, why has it such different effects when separated from Arsenic, Antimony, or Mercury, from those which it produces when acquired by the animal fibres from Iron?

If Iron acts as a tonic by *imparting* oxygen to the animal fibres; how does the Cortex produce its tonic effects; when M. F. teaches us that it *attracts* oxygen and combines with it? —If oxygen thickens the fluids, how happens it that Opium or Bark liberally given, changes the thin Ichor of Ulcers into mild pure pus? In short, so many difficulties press on every side; so many obstacles arise in every direction; and so many inconsistencies distract in every strict investigation of the anti-phlogistic doctrine

which M. F. so eagerly maintains; that although the enormous mass of philosophers, which the world now groans under, swallow it as gospel, I —poor I —am still,

A SCEPTIC.



*Fire defended against Motion; or, Criticisms  
upon MR. DAVY's Theory that Fire is no-  
thing but Motion.*

DR. BEDDOES hath lately taken by the hand,  
MR. HUMPHREY DAVY; a young man of pro-  
mising abilities, ingenuity, and application;  
whom he now introduces, with his new hypo-  
thesis, to his numerous readers.

Mr. D— hath revived the old opinion, that  
heat is not a material essence, nor any thing  
which virtually exists; but that it is merely  
motion; probably a vibration; which from its  
effects he calls repulsive motion: an opinion  
which has lately been re-adopted by the justly  
celebrated Count Rumford, also.

A number of experiments have been tried  
both by Mr. D— and the Count, which seem  
clearly to prove that the heat, rendered sensi-

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ble by friction, cannot be explain'd by chemical decomposition, change of capacity, nor any of the principles of the new, or Anti-phlogistic theory of Lavoisier; therefore, as they are at a loss in what manner to account for its appearance in those experiments, they conclude that it is a mere — *Vox & præterea nihil*; — a condition of bodies; — a vibration of their corpuscles; tending to separate them.

Being, naturally, of a constitution rather cold, a good fire is, with me, one of the good things of this world; and being sometimes a little indolent also, I feel a repugnancy to exchange it for motion; although my reason may tell me that the change is only in idea. — How oft have I, when the cold winds of winter have rushed against my walls; or, impudently whistling, have intruded themselves into my room through every cranny; or, with hollow terrific roar down the top of my chimney, have threaten'd me with starvation; while the rattling sleet or drifting snow has beat incessantly against my window: how oft have I, then, stirred up my fire; and, cheered by its influence,

have been rapt into extacy, by comparing the pleasing comfortable sensations it at that moment imparted, with the ideas of coldness, misery and wretchedness, which I should inevitably have experienced by its absence! —and can I, then, after such real enjoyment, and with such apathy to motion, suffer the idea of fire to be annihilated, to make room for motion; and not make one struggle to save it? —No, —I will resolutely defend it, till arguments fail me, if such an occurrence can ever happen, or such protraction be found necessary, against all opponents: —nay, moreover than that, should I be foiled in the contest, I will call in the assistance of the parson of the parish; and if necessary, will summons up the forces of the apologising Champion of Christendom to come forward in its defence; for his religious tenets, which he so zealously defends as to threaten to knock down every man who dares to oppose them, can no more do without fire in the other world, than my constitution can do without it in this; for if fire be nothing but motion in this world, hell fire can only be perpetual motion in the next. If so many who have laboured to find the perpe-

tual motion in vain will find it when they least expect it, and if not of *very* active dispositions may perhaps grow tired of it.

Before I enter upon the arguments which Mr. D. hath brought forwards, to prove the non-entity of heat, or fire; let me, first of all, consider in what manner it can be conceived possible for motion to produce the phenomena of heat. —I take a candle, and apply to the extremity of the wick, a flame: that flame puts the wick in motion; —at first, if not well put into motion, it seems doubtful whether that degree of vibration can overcome the inertia or not. —In half a minute, however, the vibration becomes free: the motion by resistance is increased; and my candle, now vibrates, with as much splendor as a farthing candle can afford to exhibit. —This motion then proceeds; and in two, or three hours time, it, progressively, shakes the candle into atoms, which are dispersed about the room.

From this statement, which according to Mr. D--'s theory is certainly correct, we learn; —

1st. that cotton and tallow are excellent vibrating substances: 2ndly. that motion is not diminished by time, nor resistance, in such greasy media; and 3rdly. that motion increases its sphere of action, without diminishing its power; in proportion to the resistance it meets with, or to the work which it finds is cut out for it to do.

If heat then be vibration, or motion, it is a very odd kind of motion, that is certain. —Let us try it again.

Heat a stone just below the degree of ignition; and then let us carefully examine it: —does it stir? —No —; it is corpuscular motion we must look for: —examine its component particles, then, with the most powerful magnifiers; —is any motion perceived? None whatever—; how then do we know that the particles of stone are in motion? —by no means can we know it but by reasoning: —good: —then this motion, called heat, is motion without change of place: is motion stock-still: —is motion without sensible existence but in reasoning; and in reasoning motion is a term without an idea; —when applied to hot stones.

Again, if I apply a warm iron to a common fir match, it has no considerable effect; but if I increase the heat of the iron to candescence, the end of the match being applied, it takes fire; and the match is gradually but wholly consumed.

If fire, or heat, then, be motion, it evidently requires that motion to be in degree sufficient to overcome the attraction of the component particles of the match, by which they are consolidated: but, the singularity is, that if a degree of motion be applied to the match, just sufficient to overcome the attraction of the particles to which the motion is *immediately* given, that motion is sufficient to overcome the whole mass of attractive power, by which the component particles of the fir are consolidated; even tho' the match were as large and strong, as the main mast of a first rate ship of War!

Fortunately for us then, the motion called heat is very, very different from the motion called motion; otherwise, if a ball were projec-

ted with a degree of motion sufficient to overcome the resistance, made by the aggregative powers of attraction of a deal board, half an inch thick, it would pass through a thousand deal boards in contact, with as much ease and unconcern as through one ; only give it time.

If then motion be motion, heat is not motion; because its laws of action are, *toto cælo*, different from those of motion; particularly from those fundamental laws, that action and re-action are mutual and equal; and that every moving body loses a quantum of its own motion, equal to what it imparts to another.

Perhaps in an unwary moment, it might be urged, that the repulsive motion called heat, when applied to the match, overcomes the attraction of its particles to each other; by which they become attractive to the oxygen of the oxygen gas, in the atmosphere, with which they combine; and— and what?—the component principles of the match, by combining with oxygen, in consequence of this repulsive

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motion, can only, liberate the light of the oxygen gas; which, being projectile motion, flies away:--consequently, the acquisition of oxygen and projection of light, cannot increase the repulsive motion, or heat.—According to Mr. Davy's hypothesis, the match cannot contain any latent heat; because heat is motion; and, therefore, cannot be fixed by attraction, so as to become a part of any substance whatever: the only motion, then, which can be admitted as destroying the texture and dissipating the corpuscles of the match, is that first applied; which proceeds, unimpair'd by resistance, till the whole of the match is dispersed in atoms; or combined with oxygen, and forming a few remaining ashes.

Sr. Isaac Newton found by experiments, that heat passes through a vacuum, as perfectly as through the common atmosphere, and nearly in the same time; consequently, then, if heat be motion, a vacuum must be a *substance* capable of transmitting that motion; —but, if a vacuum must be insubstantial; then, heat is an

entity, a subtle fluid, which, when accumulated in one part, will diffuse itself around to regain an equilibrium: and, consequently, a vacuum is no interruption.

In short, the idea that heat is merely a condition of bodies, depending upon the motion, or vibration of the corpuscles, or component particles of matter, appears to me so perfectly unsupported by reason, so repugnant to the general laws of indubitable motion, and so palpably contradictory to the testimonies of the senses; that more substantial arguments must be brought, than any hitherto afforded, by either Count Rumford or Mr. Davy, before I can cease to be sceptical.

But, let me now turn my attention to the experiments upon which Mr. Davy hath founded his opinion; the arguments by which he supports it; and the consequences which he draws from it, and his other peculiar conjectures: without, however, descending to minutiae.

From Mr. D. 's experiments with the gun-lock in vacuo, and parallelopipedons of ice, it is sufficiently evident that the heat which is produced by friction, does not arise from decomposition, nor from change of capacity. —His grand experiment is the following.

“ Experiment 3. I procured a piece of clock-work, so constructed as to be set at work in the exhausted receiver; one of the external wheels of this machine came in contact with a thin metallic plate. A considerable degree of sensible heat was produced by friction between the wheel and plate when the machine worked uninsulated from bodies capable of communicating heat. I next procured a small piece of ice; round the superior edge of this a small canal was made, and filled with water. The machine was placed on the ice, but not in contact with the water. Thus disposed, the whole was placed under the receiver (which had been previously filled with carbonic acid) a quantity of pot-ash being at the same time introduced.

“ The receiver was now exhausted, &c.

“ The machine was now set to work. The  
 “ wax rapidly melting proved the increase of the  
 “ temperature.

“ Caloric then was collected by friction. In  
 “ this experiment ice was the only body in con-  
 “ tact with the machine. Had this ice given  
 “ out Caloric, the water on the top of it must  
 “ have been frozen. The water on the top of  
 “ it was not frozen, &c.

“ Heat, when produced by friction, cannot  
 “ be collected from the bodies in contact; and it  
 “ was proved by the second experiment that the  
 “ increase of temperature consequent on the  
 “ friction cannot arise from diminution of ca-  
 “ pacity, or from oxydation. But if it be con-  
 “ sidered as matter it must be produced in one  
 “ of these modes. Since (as is demonstrated  
 “ by these experiments,) it is produced in nei-  
 “ ther of these modes, it cannot be considered  
 “ as matter. It has then been experimentally  
 “ demonstrated, that Caloric, or matter of heat  
 “ does not exist!”

Some objections have been made to the experiments with ice, and with the clock-work in the London Medical Review and Magazine, which appear to me to have no force whatever. With regard to the conversion of ice into water of 35° by friction; they insinuate that "friction by disengaging the particles of ice from each other, and consequently increasing their surface, will enable them to attract heat more rapidly than if they had been allowed to remain in a solid form," —this is saying nothing to the purpose; there is a supposition without any proof; and an acquired heat without any account of the manner in which it was supplied, or the source from whence it was derived.

With respect to the clock-work they observe, that

"The parts in friction had a communication  
 "with the whole house, nay, with the whole  
 "earth; the ice only forming one link of the  
 "chain. If the ice was kept at the same tem-  
 "perature, it might afford a passage to any  
 "quantity of the matter of heat, without be-  
 "traying any marks of it, just as the chain

“which forms a communication between the  
 “cushion of an electrical machine and the  
 “earth, communicates an endless quantity of  
 “electricity, without betraying any sign of its  
 “doing so.”

Now this objection appears to me truly un-  
 philosophical ; it is merely confusing and con-  
 founding arguments for the sake of opposition.  
 —The motion of heat in passing from one sub-  
 stance to another to restore the equilibrium,  
 has no resemblance to that of electric fluids ;  
 neither is it governed by the same laws, nor  
 effected in the same time.

An electrified body of any extent, may be  
 discharged through a small wire, in an instant;  
 but a mass of red hot iron of a pound weight,  
 connected even with ice, by a similar wire,  
 would be many hours in discharging its heat  
 and regaining the common temperature : con-  
 sequently, the objection is inapplicable, and of  
 no weight whatsoever. — Nay, moreover than  
 that, it is evident that a cold substance immer-  
 sed in water, by attracting heat *will* congeal

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the water, although it be surrounded by a warm atmosphere, and connected with the whole room where every thing is heated by a fire; as may readily be proved by freezing mixtures, as they are called, congealing water by the fire side; which could never happen, if water conducted heat as metals do the electric fluid; which is the absurd condition upon which the objection is formed.

But to return to the experiment in question, which Mr. D— assumes as a positive demonstration that heat is motion.—

I will allow that the heat produced by friction, by means of the clock-work standing on ice in vacuo, did not arise from diminution of capacity nor from oxydation. I will likewise allow that it was not collected from the bodies in contact: —but, I deny, absolutely and positively deny his conclusion, that “since it is produced in neither of these modes, it cannot be considered as matter.” —therefore “It has been experimentally demonstrated, that Caloric, or matter of heat, does not exist.”

Mr. D. 's conclusion is premature; is rash, and reprehensible; because he assumes, dogmatically assumes, as demonstration, what is not so; consequently, if Fire be a something which exists, which yet remains to be disproved, all his subsequent reasonings in which heat is considered as motion, are groundless errors, tending to mislead.

It appears to me highly probable, that both Mr. D— and Count Rumford adopted the opinion of the non-entity of heat, or fire through necessity:—heat was render'd evident by friction:—that heat could not be produced by communication; by decomposition; nor by diminution of capacity:—it was however produced; therefore — therefore what? — Does it follow that because Count Rumford and Mr. Davy, and Dr. Crawford's hypothesis and M. Lavoisier's theory cannot account for its presence in the cases in question, that heat, fire, or caloric is nothing?—a mere condition of bodies?—a motion or vibration which may be of great intensity and yet not evident?—a motion

which acts in defiance of all the laws of moving bodies?— a motion which is capable of being increased in proportion to the quantum of resistance; and which does not cease till it becomes destitute of proper matter to dissipate in atoms; --a motion of which, when duly considered, the mind can form no idea, and which cannot be admitted as exciting the sensation of heat, and producing the effects attributed to fire, without giving the lie to the most powerful testimonies that the senses can afford? — No — such conclusion does not necessarily follow; as it is *possible* that the heat produced may be accounted for by others, and upon different principles; although Mr. D— does not conceive in what manner; and although neither the principles of M. Lavoisier nor of Dr. Crawford are adequate to the task.

I shall take the liberty, now, for a moment, for a particular purpose, to digres a little.

For many centuries water was considered as a simple homogeneous, uncompounded, elementary substance, or fluid; and for many

centuries to have even hinted that water, probably, might be a compound, would have entitl'd a man to the honor of being stigmatized for an innovator;--a visionary; —an idle fabricator of new hypotheses;—a vain pretender to know more than any body else; and other titles which are generally given to the inquisitive, by those who have neither genius, nor invention themselves.

Now, however, it seems generally allowed that water is, in reality, a compound; because it appears to be proved by incontrovertible facts and experiments.

If 85 grains of pure oxygen gas, and 15 grains of hydrogen gas be exploded together, the oxygen and hydrogen gases disappear; and 100 grains of water are found to have been produced. Now as the weight of the water produced is equal to that of the two gases which disappear; it is evident, either that the gases combined together and became water; or, that the water was actually præexistent in the gases, and was

only deposited by exploding them together.— But, were water merely deposited, it must follow, since the weight of the water produced is equal to that of the gases employed, that it is simply water which constitutes both oxygen and hydrogen; as these gases cannot contain any thing which has weight and substance but water.—The substantial, gravitating bases of oxygen and hydrogen, however, are very different from each other; and each has very different properties from water; consequently, the water produced cannot be merely deposited; and it is, of course, generated, by the combination of the hydrogen and oxygen gases. — That the two gases in their purest and driest states may hold suspended a small proportion of water, it is not worth while to deny; as were it so in reality, still the argument would not be in the least affected by it: but that they do, is only a supposition, made for the purpose of raising objections; which cannot be proved, and therefore ought not to be attended to.

It is certain, then, that oxygen gas and hydrogen gas, as it is absurdly called, each of which has its distinct properties, by combina-

tion constitute water; a neutral compound, which possesses the characteristic properties of neither; but which has properties peculiar to itself.

Water, then, is produced by the combination of two gases; neither of which can justly be supposed to contain any water in, or as being essential to its composition; since, when the airs are perfectly pure, by no means whatever can any water be discovered in them.

And is this the whole history of the experiment by which water is generated? —No— the two gases from being so expanded as to fill quarts and gallon measures of capacity, are so changed by the explosion which produces combination, that they are condensed into a few drops of water; while a great quantity of *light* and *heat* are disengaged and escape through the vessels in which the explosion is effected.

I now have an important question to ask.— When the gravitating principles of pure oxygen and hydrogen gases, neither of which can

be discovered to contain any water in their pure state, by combination disappear, and water is produced, it is concluded that those principles constitute water; is it not, then, equally natural, equally probable, and equally just and reasonable, from pure analogy to conclude, that the elastic, invisible, *propulsive media*, which rendered the particles of oxygen and hydrogen aeriform, neither of which possessed the properties of Caloric, nor could by any means be discovered to be formed of Caloric, by *combination* formed the very *Caloric* which became abundantly evident at the very moment when the water was formed, and when those propulsive media disappeared?

Pure oxygen gas and pure hydrogen gas, neither of them can justly, or reasonably be said, much less proved, to contain either water or fire, as a necessary part in their composition; because the most powerful attractors of humidity, and the most intense cold in no respect alter them in their properties, nor disqualify them for combination and for producing heat and water by uniting together.

Oxygen and hydrogen have each, then, distinct properties; —consequently, are essentially different from each other.

The elastic and propulsive *medium* which renders the particles of oxygen *aeriform*, has properties essentially different from those possessed by the subtle medium which keeps the particles of hydrogen in the aeriform state; because the sphere of active medium around each particle of oxygen, is repulsive to every similar sphere around oxygen; by which means the oxygen is held in an aeriform state. —So is the sphere of elastic medium around each particle of hydrogen, repulsive to every other similar sphere of the same medium; which repulsion cannot be overcome by any degree of pressure: —yet, the subtle medium which renders oxygen aeriform, will readily combine with that which holds hydrogen in its gaseous state: consequently, they are distinct media; essentially different from each other; as is likewise evident from their sensible and chemical qualities.

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When oxygen and hydrogen by explosion together lose their aeriform states, their specific properties disappear, and water is produced; which is, therefore, formed by the combination of oxygen and hydrogen.

When the two elastic propulsive *media* which render the oxygen and hydrogen aeriform, by explosion together, lose their aeriform states; their specific properties disappear; and *Caloric* is produced; which is, therefore, formed by the combination of the two distinct media, disengaged from the oxygen and hydrogen.

Thus, by strictly attending to the circumstances attending the experiment, by which it is proved that water is a compound; by the strictest analogical reasoning, it appears equally evident, that *Caloric* itself is compounded also.

The very idea at once seems to free us from the grating supposition so distressing to the ingenuous mind, and so repugnant to common sense and daily experience, that all gases are

formed of Caloric with peculiar bases, and that the atmosphere itself is chiefly *fire*. —I seem to breathe more freely, from the conviction that it is possible to explain the existence of air, without the necessity of supposing it is actual fire which expands my lungs; and I can now enjoy its cooling influence, without being embarrassed with the inconsistency which sets my reasonings and my feelings at variance; one asserting that the cool refreshing breeze I am enjoying is chiefly formed of fire, and the other swearing as positively that it is false; at the same time insinuating —half aside —that it is a pity a man cannot be a philosopher without losing his senses!

That I may not overlook any circumstance of the experiment in question, it is necessary to advert to the *light* which is rendered sensible by the explosion, as well as the heat; I shall, therefore, indulge myself in a few general observations upon that wonderful fluid.

Light is commonly supposed to be *thrown off* from luminous bodies, with great velocity;

when, falling upon the retina, it excites sensations, or perceptions of colours, &c.

It has been a matter of dispute, whether light be a fluid, *disengaged* from the luminous body, and projected in right lines, with extreme velocity, or a fluid, at all times *present*; but only sensible when put into motion.

If we admit the former opinion, so generally embraced; then, according to Mr. Davy, when the wick of a farthing candle is put into motion, by a lighted match; the vibrations of the cotton are so violent, that they shake the tallow in contact, to atoms, and dislodge the light from its greasy company; in consequence of which, the light, in an instant, is disengaged and projected by the vibrating cotton and tallow, so copiously, and so violently, that in the twinkling of an eye it so completely fills a hemisphere of a couple of miles in diameter, that an eye cannot be placed in any point of that space, without being struck by the light and sensible of the impression; if it be open, and sound and the light be unobstructed!—

But, if the candle can completely fill a hemisphere of two or three miles in diameter with light, in an instant; it must, of course, in the time it requires to be shaken to atoms, disengage and throw off as much light as would fill such a bowl, thousands and tens of thousands of times!—as for my own part, not having been born with a proper relish for such immense incomprehensibilities, I cannot digest them; and therefore never attempt to swallow them.

I know that when a drum is struck upon, forcibly, I can hear it, on a still day, at the distance of a mile. The air or *something connected* with the air, conveys the impulse to the auditory nerves, or, at least, to the tympanum, which imparts it to the nerve.—

When the surrounding fluid is at rest I hear nothing; but when the drum is struck upon I hear a sound.—Nobody has yet, that I know of, maintained that the drum, when put into vibration *throws off* sonoric particles; which flow in all directions, and strike the ear;—on

the contrary, it is universally admitted, that the atmosphere, at all times surrounding us, when agitated by the vibrations of the sounding body, conveys that agitation, those vibrations to the ear; where they produce those impressions upon the auditory nerves, which excite in the sensorium the perception of sound.

Supposing, then, that nature is consistent with herself, I conclude from analogy, that light, like the atmospheric fluids, at all times exists around us; and that it only manifests its properties as light, when put into *motion*; upon the same principles as the atmospheric fluids when put into motion, excite the auditory nerves to sensation. --By this simple analogical reasoning, I have my light ready upon all occasions when I want it; and steer clear of all the incomprehensibilities of the former stupendous system, of words without adequate idea; and am at no loss to know what to do with my light when I have done with it.

If, then, analogy, reason and the sober use of a man's senses are allowable in argumentation

it must be allowable to conclude that light is a fluid of some kind; universally extended, permanently existent, and, consequently, at all times, and in all places present; but, only sensible when propell'd with velocity, or momentum sufficient to excite the optic nerve to sensation.

If I pour ink into water, I observe that the agitation spreads along the surface of the water readily, without taking the ink along with it.-- If I discharge a gun into the air, I find that the impulse is rapidly conveyed to a considerable distance; where the sound is heard without the smell of the powder;--consequently I conclude that the particles of water, or air, which immediately receive the impulse, are not projected to the distant parts where the agitation is perceived;—but that the impelling substance gives agitation, or motion to the particles of water, or air it acts against; and from them, the motion is propagated by contiguity.

But, since light and air are both elastic surrounding fluids, and in a similar manner convey

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impressions, and excite perceptions; it is reasonable to conclude, that the particles of light agitated by a lucific body, are not *those* which strike the *eye* of a distant observer; but, that the lucific excitement is mere *agitation* of the surrounding light, which is propagated by *contiguity*; and *not* by the actual *projection* of the particles of light from the lucific body directly to the eye of the distant observer.

If now a quantity of light, excited so as to become sensible by the solar influence, and acting upon a convex lens, or concave mirror, be directed towards one point, or focus; the degree of agitation there will be greater than usual. —If that focus, or condensed agitation be directed so as to act upon a small piece of iron suspended in vacuo, the iron will soon become greatly heated. —It is evident, however, that the heat thus rendered sensible, cannot be produced either by decomposition; change of capacity, nor communication with other substances: —consequently, this heat, caloric, or fire must be formed of *light itself*: and that it is so is evident from this consideration also, that a

substance, pervious to light, gives no resistance to its free agitation, or motion; which is, therefore, propagated through such substances readily, without any appearance of heat being produced; but, such bodies as are not pervious to light, re-act against it whenever it is propelled by the impulse *a tergo*; the agitated light, instead of imparting the impulse to the light beyond it, is re-acted upon by the resisting body, with a force equal to its own momentum; which re-action, by experience, is found to be sufficient to alter its mode of existence; to deprive it of its properties as light, and to change it into actual fire.

Light, then, when agitated so as to become sensible, by violent re-action, may be deprived of its lucific properties, and converted into actual fire; as is abundantly evident from the preceding experiment.

Light when agitated and rapidly propagating that agitation, is rendered evident to the sight without changing its state, or properties: but, when re-acted upon in that state of agitation,

it is converted into fire, and loses all its properties as light.

Light, then, when agitated by a lucific or exciting body, is not converted into fire by that agitation, so long as it is free to yield to the impulse and transmit it in progression; but, when it is forcibly compressed, as it were, by the tide of impulse behind, and a solid, opaque, or resisting body before, then it becomes condensed; changed in its mode of existence, and converted into fire.

Consequently, then, since light, which exists as a fluid at all times present, is convertible into heat, or fire, by violent agitation, or compression between impulse and resistance; where is the difficulty of at once seeing a clear explanation of the grand difficulty in question, the production of heat by friction? —The principle or principles called light, are universally diffused; at all times present; and ready to become sensible, as light, whenever they are agitated in a degree sufficient to excite the optic nerve; and are free to propagate that impulse,

without the resistance of opaque substances ; and, whenever these lucific principles are violently agitated, or compressed between solid bodies rapidly, or forcibly compressing and agitating the principles of light between them, these principles are actually converted into fire ; in proportion to the degree of friction and the extent and hardness of the counteracting surfaces ; and the quantum of light thus converted into fire, is always proportionate to the quantum of friction and its duration ; since the supply of the principles of light can never fail, in any experiments of ours.

Some few pages back, I gave my reasons for concluding that Fire was a compound as well as water ; and that it was formed by the combination of two distinct fluids, or elastic media ; one of which formed the propulsive spheres which kept the particles of oxygen in an æri-form state ; and the other in a similar manner connected, or held the particles of hydrogen in the state of gas ;—that in those distinct states they, in no respect, resembled fire, or Caloric ;

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but were merely elastic, visible atmospheres; and that when they lost their elastic atmospheric states, they combined and acquired new properties, which we call heat, caloric or fire.

The conclusions which I have been led to draw respecting the nature and properties of light, are perfectly analagous to the above. — Light, like the two fluids which render oxygen and hydrogen æriform, is totally different from fire; is an elastic subtle fluid; and as the two fluids in their gaseous state by violent commotion, or agitation may be made to combine and constitute fire; so may the subtle principles of light by violent agitation, percussion, or friction be made to enter into a new state of existence and form fire.

But as fire is the same thing whether produced by the combination of gaseous fluids, or the condensation and violent agitation of light, it is perfectly allowable to conclude, that light itself is formed of the same two subtile fluids or elastic media, which render oxygen and hydrogen æriform: that their lucific properties

depend upon their universal expansion in the state of elastic fluids, imperfectly combined with each other: that the various sensations, or perceptions of colours of different kinds, which they are capable of exciting, depend upon one, or other of those elastic fluids being more excited than its contrary; and that as the elastic atmospheres of oxygen and hydrogen when disturbed in their combination with matter, and violently agitated are capable of changing their mode of arrangement, and of forming a closer combination called fire; so, also the same two fluids or subtle principles in their state of universal expansion, called light, by forcible compression, or violent agitation, may become deranged and forced into combination, by which they, like the former, are converted into actual fire.

In this manner, then, would I explain the production of heat by friction; and this explanation appears to me, not only plausible, but reasonable; as being founded on analogy, and on the supposition that nature is simple in her laws, and consistent with herself in all her operations.—

How far the opinion which Mr. Davy so confidently brings forward, that heat is mere motion is reasonable, I have already attempted to shew; and now, by way of finale, I will, in a cursory review of his farther opinions, attempt to shew that such an opinion is neither reasonable nor consistent.

According to the doctrines of the new french school, all gases owe their fluidity to Caloric; that is to say, fire has so violent an affection to matter of any kind; acid, or alkaline, oxygen, hydrogen, azote, or carbon, that it is a mere slave to this universal passion; and becomes so tame, so mild, so submissive, and so gentle when combined with matter in this manner, that a man may starve to death in the midst of the fire, —thus fastened by the tail! —destroy this combination; and, like a lion disturbed in his amours; woe be to the man who comes in its way! — Mr. Davy, on the contrary tells us that gases owe not their fluidity to any thing whatever; but merely to their particles being in a certain degree of repulsive motion.

Thus, oxygen, when in close connexion with

mercury, is too absorbed in enjoyment to notice how the world goes. —If you take a few grains of it, in that happy state, it will lie entranced upon your thumb nail without motion; but— if by violent motion, called fire, you once shake the oxygen from its embrace; every particle becomes a fury! —every particle, mad with disappointment, refuses all social intercourse with, and dreads the contact of its fellow; in consequence of which, a quart mug will not contain the very oxygen which, in its happier moments, would not half cover the nail of your little finger!

As the particles of oxygen in their gaseous state, must be many hundreds of their diameters from each other; it is evident, that their motions cannot, *directly*, affect each other; therefore, if there be no interposing medium between them, nothing but their own *unsocial tempers*, or the *dread* of each others *rage* in this state of equally disappointed fruition, can be the reason of their thus standing aloof from each other.

Mr. Davy then gives another explanation of

gas; and says that oxygen gas is formed of oxygen and light: he therefore calls it phosoxxygen.

He tells us something about respiration and animal heat; which he offers as an explanation; without either he himself, or any body else being able to see any explanation, or to gather any information whatever. His ideas however must be founded upon this principle, that *motion* is *quiescent* in some substances; and becomes *active motion* when those substances are decomposed: which is an absurdity, obscured by being delivered in unmeaning, unintelligible language.

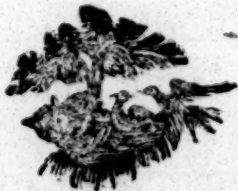
Motion, whether repulsive, or projectile, terms which Mr. Davy employs upon every occasion, implies action, or change of place; 'tis preposterous therefore to personify it, and make it capable of chemical combination with matter, so as to be at the same time motion and quiescent. — Yet, light, in despite of its projectile motion, according to Mr. D--, may be rendered fixed and quiescent by oxygen; at least there is no appearance of motion whatsoever; and, therefore, no one

has a right to insist upon it in that state of permanent unvarying fluidity. —Phosphorus is a substance equally at rest, or inert; and, *per se*, has no disposition to move or change; and yet if this phosphorus be introduced to this phos-oxygen, tho' neither of them shew any change, motion, or disposition to move when separate, the instant they come in contact, a violent conflagration takes place; in which the phos-oxygen and phosphorus are rapidly consumed with intense heat. —Now let me ask, if fire is motion from whence did this violent motion proceed? —how could two inactive, *quiescent* substances produce such *intensity of motion*, unless motion be supposed to be capable of quiescence, and still be motion? —a supposition involving an absurdity, which is, therefore, neither intelligible nor admissible.

Mr. Davy teaches us that the *nervous fluid* is *light* secreted by the arteries:—of course, the functions of the brain, as well as of the nerves, must depend upon light; and the greater the stock of light stored up in the cranium, the more vigorous must be intellectual powers.

Since that is the case, as a great deal of what follows in Mr. D—'s paper *now* appears to me unintelligible, from the quantity of words employed without any ideas belonging them; and as *light* is now *scarce* and not of the *best quality* I shall drop the subject; till towards the next summer; when I hope it will be more pure and plentiful.—In the mean time, Mr. D—has my best wishes; and I take my leave of him in perfect good humour; though with respect to his new theory, I confess myself

A SCEPTIC.



*A Colloquial Dissertation on the new set of Empirics, the Æolists, or Quacks-Pneumatic, with Criticisms on a popular Work on their principles.*

Being an obscure fellow ; living in obscurity, in an obscure corner of the world, it gives me pleasure when, sometimes, an old acquaintance stumbles over my threshold ; as I then get some little information of what is going forward in the world.

Jack Cayenne, partner to an old apothecary in the neighbourhood, called upon me the other day ; and knowing that I was a reader, amongst other things, in the course of a rapid conversation, asked me if I had seen the famous new publication called - Phisical extracts, or some such thing, tho' his memory, he said, was not very correct in names and titles ? — I answered that I paid little attention to phar-

macy. —Pharmacy! replied he quickly! why you quite mistake the thing! — instead of being a collection of receipts for making the phisical extracts, you are meaning, of Bark, of Gentian &c. &c. — the work in question is formed of extracts from medical writers!—indeed!—yes!—so it is Sir.— I have it and it is much at your service.— You are kind Mr. C. but as it is not at hand and you have perused it, give me your opinion;—give me a sketch of it. —willingly says the volatile Cayenne; attend.

This book Sir, or rather, these four octavo volumes are anonymous, and constructed upon a plan quite novel. About a third part of each volume is taken up with a kind of syllabus, or table of contents; without any references; consequently, it answers no end but to swell the work and enhance the price: it is a bill of fare which is absurdly sent up with the victuals; as though a man could not tell what was for dinner, by looking upon the table, as well as by reading over a bill of fare half as long as the table upon which the victuals were dish'd.

This work, Sir, consists of extracts from other writers; which the author has tagg'd together with ands, fors, buts and also's. --When I first looked into it, not being aware of trick; not recollecting the title: I fancied I was reading the author's own work; 'till being struck with a remarkable coincidence between the reasoning in the text and my own, I, at last, to my no small astonishment, found that I had been reading several pages, extracted from a tract published some time ago by myself! —My eyes instantly opened to a downright stare! —D-mme, says I, —if I had not recollected the passage, I should have entertained the false idea, that this fellow had been the very author of what I had just now read!

—No inverted comma; —no acknowledgement of the author; —no hint, whatsoever, that what you are reading is not entirely the author's own; excepting the general title; in consequence of which, nine hundred and ninety-nine out of a thousand readers, attribute to this compiler, all that is there laid before them. —Give me leave, Sir, to say that

*I think* this is unfair—Phisical extracts !—they *strike me* as being phisical thefts !—Stolen from every book the compiler has laid his hands upon ; cemented together by some soft wishey-washey stuff of his own ; and, in this state, the unsuspecting multitude fancy every thing proceeds from the author ; and the pilfering compiler receives the applause which is due, not to him, but to the numerous authors he has robb'd, *in effect* ; tho' he shelters himself under the pitiful salvo of a general title.

So have I seen a spruce, little mantua-maker, display to her customers a counter-pane, formed of all the various patterns and beauties, that the printing art, on such materials, has produced. —I have seen the good, unsuspecting matrons gaze with rapture ! and look with envy and astonishment, at such a display of beauty, ingenuity and worth ! —till, at length, some keen eyed dame, struck with a pattern, which, she thought solely in her own possession, dispels the illusion ; by shewing them that the beautiful assemblage before them, was composed of shreds, pieces and patches, which had

been stolen from every individual in the neighbourhood ! —and that there was nothing the mantua-maker had done, but cut them into proper shapes and sizes and stitch them together; and nothing, therefore, that she was so remarkable for, as her *impudence* in thus exposing them and herself.

You astonish me Mr. Cayenne by thus assuring me that a man can, without any “ by your leave ” —or acknowledgement whatever, think he has a right to republish any book, or part of a book he pleases; and hand it to the world as new, and in such a way as to pass for his own production ! —an extract ought, at all times, to be distinguish'd, or separated by some concerted marks, so as to be known not to belong to the author of the book in which it is quoted; but, when it is incorporated, so that the author's own cannot be known, by general readers, from the quotation, it is no longer quotation in fact, but —theft ! and when several, when many thefts of this kind are discovered in any work, depend upon it, Mr. Cayenne, that upon close examination, nothing

in that work belongs to the compiler, which any author he has stolen from would not blush to own.

And pray Mr. Cayenne is it known who was the author of this scissors and paste work? — why— yes Sir.— when this plagiarist found that this work took with the people; and that all the merit due to all the authors, which he had collected information, or entertainment from, was given to *him* as whole and sole author; he, then, like the jackdaw in peacock's feathers, strutted forth “ *tumens inani superbia* ” — Dr. Thistleton! — if I recollect right,— author of the phisical extracts so greatly applauded! —

And who Mr. Cayenne is this Dr. Thistleton? — do you know him?— why— no Sir,— not personally.— nor much about him, but what he tells himself? but from that source of information I learn, that he is a dashing empiric of the new school,— called the *Æolists*,— or the quacks-pneumatic.

These *Æolists* Sir brew quantities of *air*, or

*gases* as they call them after the visionary Van Helmont, which they retail by the *bladder-full*; and like the quacks of the old school, the Broadbums, Godsbobs, Syllymans and Syblice, they publish wonderful accounts of wonderful cures, effected by breathing so many bladders full of air a day.

Thus, we are informed, that oxygen gas, if the pulse be slow will *quicken* it; and if the pulse be quick it will render it *slower*: — that when a man is rotten, and the portion of lungs capable of taking in air, is not larger than the clenched fists, he takes in *too much* oxygen; and, therefore, that he must breath so many bladders full of gas, not fit for a christian, and which even a dog would turn up his nose at.

They teach us that the blood by circulating through the arteries and veins, picks up bits of *charcoal*; and that the lungs are a *pair of bellows*, which blow away the charcoal in the form of a gas, which they call carbonic.

They tell us that the common air, which we

common people breathe, is a compound of oxygen and azotic gases:—that blood attracts the oxygen from the azote; and, then, when it happens to suit their purpose, they assure us that the azote attracts oxygen from the blood.

They tell us that irritability accumulates in proportion to the defect of stimulus; and, consequently, when a man is *starving to death*, his blood congealing in his veins till he has neither sense nor feeling, that the fellow is dying from *accumulated irritability*!

They assure us that the brain is an electrical machine; the nerves conductors; and volition of course, is only *turning the handle* which sets the brain, at work, and the electric fluid is put in motion; forgetting, however, to explain how that motion is directed to that muscle only which we want to move.

In short, they tell us every thing but the truth;—and their cases are made as clear and satisfactory, as cases can be made without either principles, reasoning, consistency or explanation.

Just at this interesting moment, a fellow in a smock frock; mounted on a blind cart horse came thund'ring to the door;— Dr. Cayenne was wanted to see his wife, who had been long ill, and was now dying of a quinsy; and he was requested to set off immediately, that he might see her before her departure.—Cayenne rose to obey the summons: shook me by the hand; and promising to call upon me soon, to finish his friendly remarks, mounted his horse and set off in a gallop; that he might be in time to see the wonderful phenomenon of *accumulated irritability exploding in death.*

Knowing my friend Cayenne to be sometimes, a little too keen; and apt to season his dishes so high as to render the true flavor of his viands imperceptible; I have taken an impartial review of his discourse, and think the employment of the different kinds of gases, as an auxiliary in medicine, not only allowable, but praise-worthy, and capable of affording real benefit, when judiciously administered. It is an indubitable fact, that the atmospheric

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air is as essential to life and health, as the food we eat: —if, therefore, the physician finds it necessary to change the quality of the ingesta, and to increase, or diminish the degree of stimulus taken into the stomach, according to circumstances; it surely must stand good in reason, that equal benefit may be derived, in certain cases, from changing the quality of the air we breathe, so as to render the degree of excitement we naturally require from it, suitable to the state of the constitution.

With respect to their speculations and their theories; so long as they are devoid of principles, and abundant in inconsistencies and absurdities, I must beg leave to remain as usual,

A SCEPTIC.



*On Religion and Politics.*

Religion and Politics are subjects of such weight and importance, that either of them, singly, is sufficient to require all the powers of the mind in its investigation. Of the truth of this, I was soon convinced, for when I sat me down to consider them, together, their momentum was so great as to overpower the activity of my mind, and I —dropt asleep.

In this situation some of the more detached *Ideas* soon began to recover themselves and to arouse others; till at length certain ill-arranged groups were formed; which disturbing the *sensorium commune* produced what is called —a dream. —I thought, in this dream, that I was become a kind of Aristotle the second: —that I had a number of pupils, whom I taught as I walked about in Royal gardens. —In consequence, I suppose, of the ideas which had

employ'd my mind previous to my falling asleep, *Religion and Politics*, were the topics upon which I was about to harangue my attendants. — Impressed with a becoming conviction of the importance of the subjects, I, to avoid the chance of interruption from accidental visitors, deviated from the opener paths into the more retired parts of the garden, with my followers; when, fixing my eye upon a grotesque figure in a cherry tree, and directing my steps towards it, I thus began my discourse.

Religion and Politics, are like ——— at this very moment one of my attendants suddenly exclaimed “for G-d's sake, Sir, take care of that man-trap!” — my attention was instantly called to the object, which was ready to receive the next proceeding foot! — and I sprang back with violence to escape the danger. — 'Till this moment every thing had been *ideal*; but, unfortunately, the alarm had so completely taken possession of my mind, that it was productive of a *real* exertion, which overset my table; extinguished my candle; broke my glass and decanter; spilled my wine, and made such

a clatter, —such a noise and such confusion, as not only raised my imaginary alarm to real terror, but, also alarmed the whole neighbourhood! —My eyes were instantaneously expanded to their utmost; when, one solitary ray of light from the fire, shining upon a bust of Demosthenes in bronze, directly facing me, I took it, in that moment of mental disorder, for Friar Bacon's *brazen head*; and immediately braced my tympana to hear its oracular sentences. —The illusion, however, soon vanished; —the danger disappeared so soon as I was convinced of being safe in my arm'd chair; and this mental hubbub soon subsided and left me in my sober senses; convinced that the whole had been but —a dream.

Since, however, even the dreaming about such subjects is thus productive of alarm and inconveniences; it may not be amiss to let them alone when awake: and since Bacon's *brazen head* was the first idea which was excited in my mind after my eyes were opened; let me take it as my *pattern*; and like it comprize all I have got to say upon these subjects, in

three short sentences. —time was! —time is!  
—time's past!

*Time was!* —when I durst have spoken my  
mind, free as the radiant beam from Sol's bright  
orb!

*Time is!* —in which —the less is said the  
better.

If still my gentle reader bids me speak and  
tell him all I dare —hear then that all —  
*Time's past!* —! —!

*Finis.*

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